Claims

What is Claimed is:

1. A method, comprising the steps of:

    receiving a message including bits corresponding to an identifier, the identifier including a unique address;

    extracting the unique address from the identifier;

    comparing the unique address to a set of predetermined addresses;

    changing selected ones of the identifier bits when the unique address is not one of the set of predetermined addresses, wherein the changing of the identifier bits changes a value of the unique address in the identifier;

    re-comparing the updated unique address to the set of predetermined addresses; and

    processing the message when the unique address matches one of the set of predetermined addresses.

2. The method of claim 1, wherein the message is one of an interrogation from a Mode S ground radar and a reply from a Mode S aircraft transponder.

3. The method of claim 1, wherein the identifier bits include the unique address combined with a CRC check sum.

4.   The method of claim 1, wherein the unique address corresponds to a transponder for an aircraft.

5.   The method of claim 1, wherein the message is received by a passive radar ground station.

6.   The method of claim 1, wherein the changing step and re-comparing step are repeated until there is a match between the unique address and one of the set of predetermined addresses.

7.   The method of claim 1, wherein the selected ones of the identifier bits are determined based on damage to the message from an SLS pulse.

8.   A method, comprising the steps of:

        receiving an in-the-clear message from an aircraft transponder at a passive ground station, the message including an identifier, the identifier including a unique address for the aircraft transponder;

        extracting the address from the identifier;

        determining whether the address has been previously stored in a set of addresses corresponding to aircraft in a range of the passive ground station;

        storing the address in the set of addresses when the address has not been previously stored;

receiving an interrogation from an active ground station at the passive ground

station, the interrogation including the unique address for the aircraft transponder;

and

error correcting the interrogation with the set of addresses.

9. The method according to claim 8, wherein the in-the-clear message includes one of

an all-call reply message and a squitted message.

10. The method according to claim 9, wherein the identifier of the all-call reply message

includes the unique address combined with an interrogation identifier of the active

ground station to which the aircraft transponder is replying.

11. The method according to claim 8, wherein the aircraft transponder and the active

ground station are Mode S capable.

12. The method according to claim 8, further comprising the steps of:

storing additional information corresponding to each of the addresses stored in the

set of addresses; and

updating the additional information when an in-the-clear message is received

corresponding to each of the addresses in the set of addresses.

13. The method according to claim 12, wherein the additional information includes one

of a time the last in-the-clear message was received for each address, the number of

in-the-clear messages received for each address and a timing distribution of in-the-

clear messages for each address.

14. The method according to claim 8, wherein the error correcting step includes the substeps of:

comparing the unique address in the interrogation to the stored set of addresses;

changing selected ones of bits corresponding to the identifier of the interrogation when the unique address is not one of the set of addresses, wherein the changing of the identifier bits changes a value of the unique address in the identifier;

re-comparing the updated unique address to the set of addresses; and

processing the interrogation when the unique address matches one of the set of addresses.

15. A system, comprising:

a passive radar receiving a message including bits corresponding to an identifier, the identifier including a unique address;

a database including a set of predetermined addresses; and

a processor comparing the unique address to the set of predetermined addresses and changes selected ones of the identifier bits when the unique address is not one of the set of predetermined addresses, wherein the changing of the identifier bits changes a value of the unique address in the identifier.

16. The system of claim 15, wherein the processor re-compares the updated unique address to the set of predetermined addresses and processes the message when the unique address matches one of the set of predetermined addresses.

17. The system of claim 15, wherein the message is one of an interrogation from a Mode S ground radar and a reply from a Mode S aircraft transponder.

18. The method of claim 15, wherein the identifier bits include the unique address combined with a CRC check sum.

19. The method of claim 15, wherein the unique address corresponds to a transponder for an aircraft.